

The Longleaf Pine Forest: Trends and Current Conditions

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ABSTRACT - The area occupied by longleaf pine, once the dominant tree species of the Southern Coastal Plains, has been drastically reduced over the last 200 years. In all states except Florida, the private sector owns the majority of the remaining longleaf pine. The private sector is also where most of the losses in longleaf acreage have occurred from 1986 to 1995. The potential for future losses is high because much of the longleaf controlled by the private non-industrial owner is, or soon will reach, sawtimber size. Harvest levels are likely to increase due to rising prices for this product. If we wish to reverse the loss of longleaf it will be necessary to provide information and incentives to the private sector to encourage them to grow longleaf pine. Although acreage in public ownership is relatively stable there are other conditions that need attention. Fortunately, most of the remaining longleaf pine originated from natural regeneration and much of the understory remains on these sites. More normal fire regimes are needed, however, to improve the condition of the understory. Public lands will also have to provide most of the old-growth longleaf areas and the large contiguous blocks of longleaf type that are necessary for some species and landscape scale process.

INTRODUCTION

Longleaf pine (*Pinus palustris* Mill.) is the key tree species in a complex of fire-dependent ecosystems long native to the Southeastern United States. It once occupied perhaps as much as 60 million acres in the Southeastern United States, stretching from southeastern Virginia south to central Florida and west into eastern Texas (Stout and Marion 1993). These fire-dependent ecosystems covered a wide range of site conditions, from low, wet flatwoods along the coast to dry mountain slopes and ridges in Alabama and northwest Georgia. We have been intensively exploiting longleaf forests since colonial times, with little regard for regeneration. Intensive logging of the old-growth forest reached a peak shortly after the turn of the century (Ware and others 1993) until by 1935, only about 20 million acres of longleaf pine forest remained. The amount declined to 12 million acres by 1955 and to 3.8 million acres in 1985 (Kelly and Bechtold 1990).

METHODS

This report is based on information gathered by the Forest Inventory and Analysis units of the Southern Research Station, USDA Forest Service. Inventory crews collected data from permanent sample plots that are systematically distributed across States to obtain a proportionate sample of all major forest types, sites, and ownership classes in the region. Each sample plot represented a specific number of equivalent acres of timberland from the entire population. This number, termed the expansion factor, had an average value of 3,500 acres for sample plots located in longleaf pine forest type. Data for 1995 is from surveys which were actually completed as follows: North Carolina 1990, South Carolina 1993, Georgia 1989, Florida 1995, Alabama 1990, Mississippi 1995, Louisiana 1991, and Texas 1992. Data used in this report for 1985 is adapted from Kelly and Bechtold (1990).

RESULTS

The amount of longleaf pine has declined, from 3.77 million acres in 1985 (Kelly and Bechtold 1990) to 2.95 million acres in 1995. The distribution of the remaining longleaf stands across the South is similar to the original longleaf range except for the near elimination from northeastern North Carolina and Southeastern Virginia. The largest concentration of longleaf is in Okaloosa and Santa Rosa counties in the Florida panhandle and adjacent Escambia county, Alabama. The amount of longleaf pine on public lands has remained relatively stable from 1985 to 1995, with only North Carolina and Florida showing a small decline. The area of longleaf on forest industry lands in North Carolina, Georgia, Florida and Mississippi declined by about 50 percent over the last decade. Overall, forest industry has lost 225,000 acres, which is 27 percent of the total decline in longleaf pine since 1985. The greatest losses in longleaf, however, occurred on private non-industrial lands. All states except Mississippi show a decline in the amount of longleaf pine on private lands. Georgia, Florida, and Alabama lost over 100,000 acres of longleaf pine from private lands since 1985. The total acreage on private lands declined by 591,200 acres, which is 72 percent of the total decrease in area occupied by longleaf pine.

Florida has the largest amount of longleaf pine remaining, with nearly three quarters of a million acres or 25 percent of the total. Georgia and Alabama both contain 18 percent of the remaining longleaf acreage. Eighty-five percent of the remaining longleaf was established by natural regeneration, 15 percent by planting. Nearly all planted stands are less than 40 years of age while natural longleaf stands are predominantly 41 years of age and older. Forest industry owns 16 percent of the longleaf acreage. Public agencies control 33 percent of the longleaf acreage while other private landowners consisting of individuals, farmers, and other corporations own 51 percent. Florida is unique because it is the only state where the public sector owns the largest amount of longleaf. In Georgia we find the reverse situation, with very little longleaf on public lands.

From 25 to 35 percent of the longleaf remaining in Florida, Georgia, South Carolina and North Carolina occurs in stands of 20 acres or less. Stands of less than 50 acres comprise from 45 to 60 percent of all natural longleaf in these states. In Florida, most small stands of longleaf are in private ownership while most stands over 100 acres are on public lands. Public ownership is also skewed toward the larger stand sizes in North Carolina. Trees in the sawtimber size class dominate over 60 percent of all longleaf stands.

CONCLUSIONS

The area occupied by longleaf pine, once the dominant tree species of the Southern Coastal Plains, has been drastically reduced over the last 200 years. In all states except Florida, the private sector owns the majority of the remaining longleaf pine. The private sector is also where most of the losses in longleaf acreage have occurred from 1985 to 1995. The potential for future losses is high because much of the longleaf controlled by the private non-industrial owner is, or soon will reach, sawtimber size. Harvest levels are likely to increase due to rising prices for this product. If we wish to reverse the loss of longleaf it will be necessary to provide information and incentives to the private sector to encourage them to grow longleaf pine.

Although acreage in public ownership is relatively stable there are other conditions that need attention. Fortunately, most of the remaining longleaf pine originated from natural regeneration and much of the understory remains on these sites. The forests need more normal fire regimes, however, to improve the condition of the understory. Public lands will also have to provide most of the old-growth longleaf areas and the large contiguous blocks of longleaf type that are necessary for some species and landscape scale process.

LITERATURE CITED

- Kelly, J. F. and W. A. Bechtold. 1990. The longleaf pine resource. In Proc. of Symp. on the management of longleaf pine, Long Beach, MS, April 4-6, 1989. USDA For. Serv. Southern For. Exp. Stn., New Orleans, LA. Gen. Tech. Rep. SO-75. pp 11-22.
- Outcalt, K.W. 1993. Wiregrass cover following site preparation of sandhills. In: D. H. Gjerstad (Editor), Proc. International Conf. on Forest Vegetation Management, April 27 - May 1, 1992, Auburn, AL. Auburn University School of Forestry Report 1993:1, p198 - 201.
- Outcalt, K.W., and C.E. Lewis. 1990. Response of wiregrass (*Aristida stricta*) to mechanical site preparation. In: L.C. Duever and R.F. Noss (Editors), Wiregrass biology and management, Symp. Proc., Oct. 13, 1988, Valdosta, GA, KBN Engineering & Applied Sciences, Gainesville, FL., 12p.
- Stout, I. J., and W. R. Marion. 1993. Pine flatwoods and xeric pine forests of the southern (lower) coastal plain. In Biodiversity of the southeastern United States: lowland terrestrial communities. Martin, W. H., S.G. Boyce, and A. C. Echternacht. Eds. pp 373-446.
- Ware, S., C. Frost, and P.D. Doerr. 1993. Southern mixed hardwood forest: The former longleaf pine forest. In Biodiversity of the southeastern United States: lowland terrestrial communities. Martin, W. H., S.G. Boyce, and A. C. Echternacht. Eds. pp 447-493.